



Z. H. Sikder University of Science and Technology

Department of Computer Science and Engineering

Course Outline

Semester : Fall 2023
Course Title : CSE 1104 (Structured Programming Language Lab)
Credit Hour : 1.50
Class Schedule : Wednesday (12:00 PM - 01:40 PM)
Room No. : 103

Consultation Hour : Tuesday (12.50 PM -1:40 PM)
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Mark Distribution	
Attendance	10%
Contest	30%
Lab Report	10%
Viva	20%
Lab Final (Contest)	30%
Total	100%

Class No.	Date	Topics of Experiments	Activities
1	20-09-23	Basic	LE
2	27-09-23	Expression	LE
3	04-10-23	If else	LE
4	11-10-23	If else (Continued)	LE
5	18-10-23	Contest 1: If Else	Exam
6	25-10-23	Loop	LE
7	01-11-23	Loop (Continued)	LE
Mid-Term Examination (1 st Session) (06/11/2023 to 10/11/2023)			
8	15-11-23	Array	LE
10	22-11-23	Array (Continued)	LE
11	29-11-23	Contest 2: Loop	Exam
12	06-12-23	Array (Continued)	LE
Mid-Term Examination (2 nd Session) (11/12/2023 to 15/12/2023)			
13	20-12-23	Contest 3: Array	Exam
14	27-12-23	Function	LE
15	03-01-24	Recursion	LE
16	10-01-24	Structure	LE
17	17-01-24	Structure Array	LE
Lab Final Exam (Lab Test, Viva)			Exam
Final Examination (20/01/2023 to 31/02/2023)			

*LE = Lab Experiment

Book References:

1. The C Programming Language, Prentice Hall - Kernighan and Ritchie
2. Programming with C, Schaum's Outline Series, Tata McGraw Hill – Gotfreid
3. The Art of Computer Programming, Addison-Wesley Professional - D.E. Knuth
4. Programming with ANSI C, Tata McGraw Hill - E. Balagurusamy
5. Teach yourself C, McGraw-Hill Publishers - H. Schildt

Course Policy:

Standard ZHSUST rules will be observed for all disciplinary issues. Cases of extra-collaboration, in other words, cheating, will lead to penalties to both the source and destination, irrespective of the individuals' intent or motive, without warning. Any case of plagiarism will be severely punished



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Lab Experiment List (Total 62 Problems):

Simple:

1. Print Hello World
2. Take Two Number as Input, Make Summation/Subtraction and print that
3. Take Two Number as Input, Swap them and print
4. Take Input as a, b, c, d; make calculation using the following formula and print X.
 $X = a*b + c/d$

Expression:

5. Temperature Conversion
 - a. Celsius to Kelvin
 - b. Celsius to Fahrenheit
 - c. Fahrenheit to Kelvin
6. Day to year, month, date conversion

If Else:

7. Positive, Negative
8. a is divided by b or not
9. Even - Odd problem
10. Grading System
11. Find Min-Max between two numbers
12. Bharaskular Formula
13. Small or Capital Latter
14. Vowel or Consonant
15. Triangle or Not
16. Alphabet, Digit or Special Character

Loop:

17. Print n Stars (*) Sequentially
18. 1 to n Print
19. Make Sum and Average from 1 to n
20. find Factorial of given number n
21. Make Sum from 1^2 to n^2 and print in each 10th.
22. Print all Even/Odd from 1 to n (Using Continue)
23. Print All Divisors of m from 1 to n
24. Print first nth numbers Fibonacci Numbers
25. Prime Number or Not?
26. Find Sum using the following formula

$$1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \dots + \frac{x^n}{n!}$$

27. find Sin(x) using the following formula:
28. $\sin(x) = x - (x^3 / 3!) + (x^5 / 5!) - (x^7 / 7!) + \dots$

Nested Loop:

29. Pattern Printing
 - 29.1 The pattern like:

*
**

- 29.2 The pattern like:

1
2 3
4 5 6



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7 8 9 10

29.3 The pattern like:

```
1
2 3
4 5 6
7 8 9 10
```

29.4 Pascal Triangle:

```
1
1 1
1 2 1
1 3 3 1
1 4 6 4 1
```

29.5 The pattern like:

```
*
***
*****
*****
*****
*****
*****
***
*
```

30. all Possible Sum from 2 array

Array: (1D)

31. Take n Numbers as input and Display it
32. Take n Numbers as input and Display it in reverse order.
33. Take n Numbers as input and store it into array, then **linear search**
34. Frequency Count
35. Find Max and Min element from an array.
36. Separate odd and even Elements into separate arrays
37. Copy the Elements from one array to another array.
38. Make an array using all unique elements from another array, which is ascending ordered.
39. Make One array by Merging two ascending ordered array.

Array: (2D)

40. Input a Matrix (2D array) of size 3x3 and print the matrix
41. Take Input of two matrixes, make Sum/Subtract and output it.
42. Find the sum of the left/right diagonals of a matrix
43. Identity Matrix or Not?

Function:

44. Without return and without parameter:
 - a. Take two input **a** and **b**, n times and make summation and print the value
45. With return and without parameter
 - a. Take two input **a** and **b**, n times and make summation and print the value
 - b. Take n number as input, make summation and return it.
46. Without return and with parameter
 - a. Take two input **a** and **b**, n times and make summation and print the value
 - b. Pass an array into function using **Pass by Value**, make sum and print it inside the function
 - c. Pass an array into function using **Pass by reference**, make sum and print it inside the function
47. With return and with parameter
 - a. Take 3 length of each side of a triangle, pass them into area function, calculate the area and return it.
 - b. Pass an array into function using **Pass by reference** and one value **S**, Make Search on



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the array if there exist the S or not and return the output.

Recursion:

- 48. 1 to n and n to 1 print
- 49. Factorial
- 50. Fibonacci

Structure:

- 51. A Student profile
- 52. All Students Profile